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# Dakota Zephyr

South Dakota State College Extension Service, Brookings

*The Soil Is the Basis of Civilization; Destroy It and You Destroy All*

August 15, 1944

## 34 SC Districts Operate in S.D.

There are now 34 soil conservation districts in South Dakota with a total land area of 11,800,330 acres and 23,515 operating units. So far this year, new districts have been organized in Yankton and Marshall counties, according to Ross D. Davies, state conservationist.

Additions already this year have been made in Day, Turner, Lincoln, Elk Creek (Meade county), Clay, Carpenter (Spink), Codington, Fall River and Minnehaha districts. A total of 2,412,489 acres has been added to districts since January 1.

There are nine counties with all land in soil conservation districts. They include Clay, Bon Homme, Minnehaha, Sanborn, Jerauld, Codington, Roberts, Jackson and Fall River counties.

The state soil conservation committee has authorized referendums on proposed new districts in Brookings and Moody counties. Referendums among landowners have also been authorized on proposed additions to the Elm Creek-Midland district in Hand county and the Clearfield-Keyapaha and Hamill districts in Tripp county. Land area in these proposed new districts and additions totals over a million acres. If finally approved, it will mean more than one-third of all land on farms in South Dakota will be within boundaries of organized soil conservation districts.

## Catch Four Times as Many Rats in 1944

Webster, S. D.—Ury Dahling, state game warden for Day county, places the 1944 catch of muskrats for Day county at \$180,000 compared to \$45,000 during 1943. This increase in value is due to the higher prices received and the rapid increase in muskrat population supported by a greater number of potholes.

However, there was quite a loss of rats that were froze out of the shallow sloughs last fall and had to migrate.

### New Soil Conservationist



LEONARD L. LADD became soil conservationist of the South Dakota agricultural extension service July 1 succeeding Ralph E. Hansen now with the Dakota Farmer. Mr. Ladd will have charge of general educational work in soil conservation, both in and outside of districts.

The new conservationist comes to his position after eight years as county extension agent in Beadle county. While there he was active in the formation of the Carpenter and West Beadle districts.

He also had a prominent part in the Wolsey, Shue-Creek project, the first in South Dakota and one of the first in the United States to study methods of restoring badly wind-eroded land to production.

The practices of cover crops, sub-surface tillage, strip cropping and grass seeding, tried there, are now standard conservation methods where wind erosion is a problem.

Mr. Ladd was graduated from State College in 1920 and founded the Bryant Smith-Hughes department where he taught one year. He was then county agent in Pennington county three years, operated the family farm north of Brookings 10 years, was county agent in Davison county two years, going to Beadle county in 1936.

*Conservation farming is popular in soil conservation districts because it increases food production.*

## Spearfish Groups Join To Show Garden Growing Possibilities

The Spearfish cooperative garden demonstration and experimental project offers a splendid opportunity for the several agencies involved to cooperate in the conduct of a demonstration. The South Dakota State college experiment station, the Lawrence county extension service, the Lawrence county commissioners, the Spearfish Commercial club, the City of Spearfish, the Lawrence-Butte soil conservation district and Robert Parker, owner of the land, are all helping to make the project a success.

The purpose of the project is to determine if it is practical to raise garden vegetables and small fruits to supply the local markets in the Black Hills area. It will also demonstrate the use of various cultural and management practices as well as to test others, and further to determine their effect on growth and winter hardiness. The tests will show which varieties are hardiest.

What insecticides should be used? Does fertilizer help? How should the crops be irrigated?

These questions are being answered by the management of the

plot. Several insecticides have been used to determine their effectiveness against insects as well as their influence upon yield. Nitrogen, phosphorous and potassium have been used, alone and in different combinations, to determine whether or not the growing plants need additional stimulants.

The "spile" system of irrigation whereby the water is carried onto the field through movable wooden flumes and galvanized iron pipes, has been used to irrigate the crops to avoid cutting up the area with ditches and laterals.

### Olson in Charge

The State College experiment station staff prepared the details of the project. It is under the direct supervision of Edward Olson assisted by Ivan Fluharty, Lawrence county extension agent. The Lawrence county commissioners financed the flume material and some machinery for levelling the ground. The Spearfish Chamber of Commerce and the City of Spearfish financed the construction of the flumes and some of the labor and machinery for the leveling work. The Lawrence-Butte soil conservation district under the supervision of Louis Joy furnished the technical assistance for the land levelling, flume construction, different methods of irrigation and the fertilizer tests.

Results of the trial are not yet complete. They will be released by the experiment station when they become available.

## Build 10 New Trench Silos

Belle Fourche, S. D.—Conservation of feed was uppermost in the minds of several cooperators in the Lawrence-Butte Soil Conservation district last year, when it failed to rain and the corn did not mature.

Cooperators with the district constructed 10 trench silos this past fall to conserve their feed and insure a good supply of feed for this winter's use.

The silos ranged in size from 75 tons to 300 tons and the cost to the cooperators was \$25 to \$80 depending on the size.

William Olson of Belle Fourche and Warren Johnson of Spearfish say they were able to utilize feed that they could not have used satisfactorily without the silo.

# 500 Attend Day County Crop Improvement Picnic

Webster, S. D.—Nearly 500 people attended the farmers' picnic, program and tour sponsored by the Day county crop improvement association and held at Roslyn in July reports A. O'Connell, county agent. Attendants enjoyed a picnic lunch at the City Park.

President John G. Reetz of the Crop Improvement association, presided at the program of music and talks.

U. J. Norgaard, state extension agronomist, complimented the association and all farmers for splendid work in keeping abreast with improved adapted crop varieties and soil conservation and fertility improvement practices and weed control.

At the beginning of the tour an inspection was made of some machinery of the soil conservation district with explanations made by P. C. Underwood, work unit conservationist. The machinery inspected consisted of a tree planter, tumble bug and combination tree cultivator.

## Flax Needs Resistance

Mr. Norgaard began the inspection of the flax test plot of nine varieties by stating that aside from oil quality and content, there are four characteristics sought for in flax varieties for this area—rust, wilt and pasmo resistance and the ability to fight weeds.

He said that one cannot judge flax seed or any other seed merely by inspection. To illustrate he said that Golden flax has won first prize at the Chicago national grain show for the last three years but he has never seen a good field of this variety in South Dakota because of short straw and weed competition. It looked the poorest in the Stavig plot.

The Canadian Royal is late and is not as resistant to wilt as Bison or Redwing so it would perhaps do best on sod. Koto showed up well. Seed of this variety is being increased. Biving is a cross between Redwing and Bison. It is superior in oil quality and content. Redwing and Buda looked good. Pasmo was in evidence on the Golden flax and other susceptible varieties but very little rust was found on any of the varieties.

The wheat varieties were heavily infected with bacterial leaf blight which, according to Mr. Norgaard, is reducing yields more or less on all varieties. Since rust has been subdued, the wilt is in evidence.

*Terracing and contour farming were developed in South Carolina between 1893 and 1905.*

## Review Work of Codington County District on Tour

Watertown, S. D.—The supervisors of the Northeast Codington county soil conservation district made an inspection tour of their district July 17. A business meeting was held in the forenoon and in the afternoon a field trip was made to several cooperators' farms.

The Earl Wheatley farm in Elmira township was the first stop at which the supervisors inspected contour strip cropping as a conservation practice. Mr. Wheatley has all of his cropland farmed on the contour with corn and small grain in alternate strips. According to Mr. Wheatley, this practice has been very effective in the control of runoff water and in addition to a more uniform distribution of moisture over the field it has prevented soil losses.

## Good for Quack Grass

The next stop was made at the Henry Klein farm on which 35 acres of creeping jenny land is being fallowed for weed control with the use of district equipment. In addition to observing the duck foot cultivators which have been used for weed control work, a Seman tiller, which is a rotary type soil mixer, was demonstrated. This machine is on loan to the supervisors and has been used to determine the effectiveness of this type of machine in weed control. This machine has been very effective in working land which has quack grass.

An inspection was made of the

farm of Henry Miller's in Rauville township in which a field of leafy spruce was fallowed in 1943. The weeds in this field had apparently been completely killed as no plants could be observed in the field. The supervisors were informed, however, that Mr. Miller plans subsurfaced till this field as soon as the small grain is removed so as to destroy any new seedlings which may be present.

A newly constructed dam on the Harry Schmeling farm in Germantown township was observed. The dam consists of 1,254 cubic yards of earth fill with a vegetative spillway. Rock have been placed on the ends of the dam to protect the dam from wave action. A small amount of water has already been impounded in the dam as a result of recent light rains.

## Has 3,000 Feet of Terrace

The next stop on the tour was made on the farm of Charles Robbins in Fuller township. Mr. Robbins has constructed approximately 3,000 feet of plow terraces. These terraces were constructed with a wheatland plow and according to Mr. Robbins they have been very effective in the control of water in this field. Mr. Robbins has also used his wheatland plow in filling and shaping grassed waterways on his farm which have been seeded to brome grass. According to Mr. Robbins, contour farming supplemented with plow terraces and grassed waterways are essential conservation practices on erodable land if productivity is to be maintained.

John Michaels, chairman of the Codington district, expressed the opinion that tours of district supervisors are essential if the supervisors are to keep themselves fully informed as to type of work being carried on by cooperators.

## Use Dynamite to Open Sand Bar Obstruction

Springfield, S. D.—A drainage ditch constructed 14 miles west of Springfield, on the Missouri river bottom, had a mud and sand bar filled in across the outlet into the Missouri river.

The Emanuel Chouteau Creek Supervisors decided to use dynamite to widen and deepen the ditch across the mud bar. Rain and high water had made the surrounding land too wet to use any kind of machinery or horses in any construction work.

The supervisors hired two men from the county, who were experienced in using dynamite. Four cases of special 50 per cent ditching dynamite were secured. A core punch bar was made to get the dynamite down

into the mud and water at a uniform depth. Different amounts of dynamite were used, but for the type of soil and the amount of moisture encountered, three sticks of dynamite, in holes two feet apart, worked best. The dynamite was fired by propagated blasting, that is one cap was used to set off a number of charges.

The exact yardage of dirt moved has not been figured, but the old channel, which was about three feet wide and four feet deep, was widened to eight feet and deepened to five feet, for a distance of, roughly, 300 feet.

This demonstrated to the supervisors that certain types of drainage work can be done with the use of dynamite.

## Good Crested Wheat

Wessington Springs, S. D.—R. C. Mills has just completed harvesting a very good crop of crested wheatgrass seed on his ranch west of Crow Lake. Mr. Mills has a large acreage of this crop, and has had considerable experience in methods of seeding since he started in 1939. He has found that early fall seeding is the most successful. He recommends that seeding be done from August 15 to September 1 in a stubble left by small grain or by weeds. The important thing is to get the seed just nicely covered in a good firm seed bed.

## Reliance District Builds 57 Dams

Reliance, S. D.—The American Creek Soil Conservation district has completed August 1, 37 stock dams—16 new with an average yardage of 1,904 and 21 repaired with an average yardage of 979, reports Horace Wagner, chairman of the district supervisors.

The district has installed five trickle ditches in dams at a cost of about \$100 each. These trickle tubes and ditches save the spillways of the dams in periods of long runoff. The supervisors are studying the best methods for this work with the idea of hiring a contractor to do the work and to furnish the material.

The cooperators are showing much interest in establishing grass waterways and also the control of gullies in fields by the use of blades and bulldozers. Many of them already have this work planned and are waiting for contractors to do the construction.

The AAA practice payment further encourages these important soil and moisture conservation practices, Mr. Wagner says.

*Contours increase yields, save soil.*

## DAKOTA ZEPHYR

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LEONARD L. LADD Extension Soil Conservationist  
ROSS D. DAVIES State Conservationist

### CONSERVATION ASSOCIATION OFFICERS

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## In Third Year of Weed Control

Woonsocket, S. D.—The Silver Creek soil conservation district of Woonsocket is carrying out its third year of weed control by clean cultivation.

The district organized its first weed control ring in the spring of 1942 with 28 cooperators who had a total of 122 acres of creeping jenny. In 1943, they had 19 cooperators with 101 acres, and this year the district has 35 cooperators with 122 acres.

In the spring of 1941 the district started weed control by furnishing a duckfoot cultivator, and having the farmers themselves make the operations when necessary. This method of operation proved to be unsatisfactory because when harvesting came on the farmers were so busy with their harvesting and threshing that they could not take the time necessary to do the weed control.

### Weed Control Important

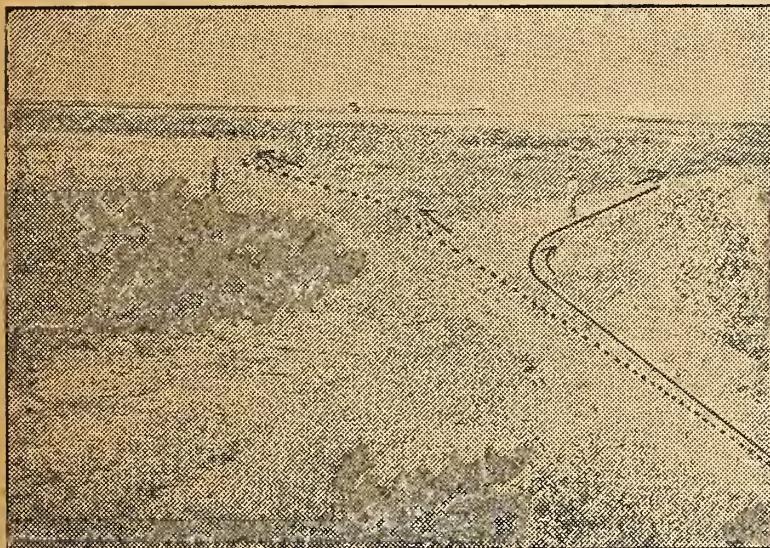
The supervisors of the Silver Creek

district decided in the spring of '42 that since weed control was one of the most important problems on the district that they would purchase a tractor and organize a weed control ring. This method of operation has proved satisfactory, and the results have been even better than anticipated.

Most of the patches are small and considerable driving has been done in getting from farm to farm, but in spite of all of these handicaps, the district has been able to continue with the weed control program. The supervisors feel that they are making a definite contribution to the war effort by assisting farmers with their weed control problems, thus eliminating these noxious weed patches when they are still small. This in turn increases the number of acres available for crop production on which crop yields have very definitely been increased.

*Removal of only a cubic yard of soil each week from an acre of land, if continued for 30 years, would amount to more than 11 inches taken from the entire surface.*

## New Dike Saves Crop



Webster, S. D.—A "dike in time" saved over 50 acres of grain for John Baillie and Verne Kirschmon of Pierpont and Gust Johnson of Bristol this spring, according to Ed Lee supervisor for the Day county soil conservation district in that area. Technicians for the district staked out the diversion dike and channel to prevent flood waters from spreading out over a large area, where considerable water must be backed up before the water goes out through its natural channel. The dotted line shows the old water course; the solid line where it now runs. The fields saved are in the background.

The necessary earth was moved

with tumble bugs by the operators of the farms benefitted working cooperatively. The tumble bugs were of a size that could be pulled with an ordinary farm tractor and the job was completed in five short days. That the ditch was completed just an hour before a heavy flash rain that would have flooded the area protected is very interesting since the newly completed dike held under this severe test.

The channel is broad and the slope on the dike is flat so that it can be seeded to grass and the crop harvested. Other farms on this watershed will support the system by contour tillage, thereby, making it a cooperative deal.

## Contours Save Corn in 7 Inch Rain in 2 Days

### Ditches Do Work of Tiles Satisfactorily

Canton, S. D.—"I am well pleased with my surface drainage work done last fall and intend to do more of it as soon as possible," is the statement made by Edward Linde, a farmer living in Norway Township and cooperator with the Lincoln soil conservation district.

Mr. Linde has a number of large sloughs and considerable level land on his 160-acre farm so that in years of moderate rainfall much of this land will not produce a crop. In fact when Mr. Linde took his farm over in 1910 there was only 65 acres producing crops.

Mr. Linde's drainage program consists of several tile lines installed many years ago which worked until clogged by tree roots, broken tile, etc. These tile lines were a big help but did not do the job in years of heavy rainfall.

### Put Surfaces Ditches

The soil conservation district made a survey and determined that these poorly drained areas could be improved materially by the construction of surface ditches ranging in depth from a few inches to five feet or more. Mr. Linde hired the district tractor and dozer to construct the ditches last November. During 1944 the first crop season was one of the wettest seasons for many years yet there was no more than 10 acres on the whole farm that is not producing a crop.

Mr. Linde cautions those who contemplate on building surface drainage ditches to be sure and spread the excavated soil far enough in the field to prevent the forming of a ridge along each side of the ditch that will act as a dam to hold the water on the land instead of entering the ditch.

Mr. Linde concludes, "Yes, I am well satisfied with my work and intend to do more with a few changes which seem desirable from my past experiences. When you figure that the first crop of oats on just 10 acres put back into production will yield approximately 50 bushels per acre, my drainage work is paid for and what it produces from now on will be all profit, I can't help but be more than satisfied."

*Subsurface tillage of cropland, soon after the crop is removed, kills weed growth and conserves moisture. Do it early.*

Gregory, S. D.—Melvin Vosika, four miles south and three miles east of Gregory, said that contouring saved his corn crop when it rained five inches the night of June 10 and two more inches the next night on his farm.

Mr. Vosika continued, "Less water than usual was carried by the drainageways on my farm. A lot of the unusual supply of water was kept on the fields by contour listing which was deeper than average listing. The loss of soil on the fields was also small."

Melvin said the excess rainfall illustrated the need from grassed drainageways to carry off the surplus water. Grassed drainageways are being planned as a part of a soil conservation plan which he is developing with the Gregory county soil conservation district. Another advantage of grassed drainageways is that they eliminate the pointed, hard-to-make turns which otherwise occur in the draws.

Melvin was glad that he could get out the cultivator and start cultivating without taking time to re-plant. A few of his neighbors were re-planting instead of cultivating.

### Two Year Old Trees Now More Than 15 Feet Tall

Redfield, S. D.—Tree plantings made in farmstead and field shelterbelts of the Tulare-Redfield conservation district since the establishment of the district, have made a remarkable growth and improvement to the farmstead and communities.

First plantings by the district were made in 1942. These plantings now have trees over 15 feet in height and in most cases a very good stand. The 1942 plantings have made such rapid growth that little if any cultivation will be required in these belts next year.

The 1943 and 1944 belts also have good stands in most cases, however, seedling stock of cottonwood in 1943 and boxelder in 1944 were below average and resulted in below average stand of these two varieties.

Since 1942 the conservation district has planted 150,000 trees on 250 acres, mostly farmstead plantings. Varieties have consisted of cottonwood, boxelder, Chinese and American elm, ash, hackberry, Russian olive, cedar, plum, chokecherry, crab apple, lilac, and honeysuckle.

*Lose the soil and all is lost.*

# Show Terrace Building With Plow at Watertown

Watertown, S. D.—On June 15 a plow terrace construction demonstration was held on the Charles Robbins farm in Fuller township, northwest of Watertown. The demonstration was conducted by Victor B. Fredenhagen, zone technician engineer from Lincoln, Neb.

The principles and rules of plow terrace construction were explained by Mr. Fredenhagen before going to the field. In the field, the first step in building a terrace is to select a proper location for the outlet, usually a grassed or well sodded area is best suited for spreading excess runoff water. Then a contour gradient line is laid out to follow for the construction of the terrace.

The method of backfurrowing is used and overlapping each round to throw up a  $1\frac{1}{2}$  foot ridge with a 12 to 16 foot channel on the upper side to prevent water from cutting through and thus carrying excess water during a heavy rainfall to the grassed outlet.

On steep slopes where contouring alone will not hold large quantities of water, terraces are very successful in carrying excess water away and preventing gullies from forming.

Those attending the demonstration, in addition to personnel at Watertown, were soil conservation service personnel from Webster, Hecla, and Sisseton.

*New contours for 1945 farming should be laid out this fall. Next spring is too late.*

## Three Contractors Building New Dams

Chamberlain, S. D.—The Brule-Buffalo soil conservation district supervisors report that they now have three contractors building dams for their district cooperators and have completed a total of 27 dams so far this season as of August 1. One contractor has completed 14 dams while the other two have completed nine and four dams, respectively. In addition to this the contractors have done considerable ditching and diking for drainage work in the district for the cooperators. The district supervisors still have approximately 60 requests for new dams which they hope to fulfill this season.

The equipment consists of three carry-all scrapers all powered by crawler-type tractors. The three outfits move from 2,700 to 3,000 cubic yards a day and have had a top day of 3,900 total cubic yards moved. The fills range in size from 755 to 4,520 cubic yards with an average fill of 1,200 cubic yards and with an average of five acre feet of storage capacity.

The work is under the supervision of the district supervisors, assisted by the technicians who cooperate in picking the site, staking the dam, designing the spillway and placing emphasis on taking the fill from the reservoir so as to give the greatest capacity possible. The three outfits will continue building dams for the district the balance of the season, the supervisors report.

## Tripp May Be Ninth County All in District

Winner, S. D.—At a meeting of the state soil conservation committee in Pierre July 13, the proposed additions to the present soil conservation districts in Tripp county were approved. The ballots were mailed to every landowner in the proposed addition the following day.

The total acreage in this proposed addition to the Hamill soil conservation district is approximately 378,725 acres. There are at present 445 operators and 771 landowners in this area. This makes an average size operating unit about 850 acres.

### Addition a Quarter Million

The townships in the addition to the Clearfield-Keyapaha soil conservation district are: Taylor, Rosedale, Weaver, Wilson, Dog Ear, McNeely, Pleasant View, Elliston, Stewart, Lincoln, Keyapaha and Valley. These townships join the present Clearfield-Keyapaha district on the north and east and most of the practices that are being used in the Clearfield-Keyapaha district are applied to these townships.

The total acreage in this proposed addition to the Clearfield-Keyapaha district is approximately 268,793 acres. There are at present about 482 operators and 922 landowners in this area. This makes the average size operating unit about 570 acres.

M. L. Warne, county extension agent, reports that considerable activity is being carried on at the present time in the districts in control of gullies, contour farming, pasture furrows, grass waterways, farmstead tree planting and dam building. He further states that if the vote is favorable, assistance will be available to farmers in the added area.

## Use Contours for New Windbreak

Centerville, S. D.—The Chris Jorgenson farm of Hurley was the scene of much activity this spring after Mr. Jorgenson decided to plant a windbreak around his newly purchased farm. Mr. Jorgenson came to the County Extension Office for advice in planning a windbreak. As a result Frank Rockwell, extension forester, and John Gurton, county agent, visited his farm and looked over the site of a proposed planting. The location was a hard slope which had defied efforts to grow trees since early days because of excessive washing and runoff.

It was decided that contour terraces would be needed to successfully establish a windbreak. Forester Rockwell, County Agent Gurton, and H. A. Mateer, work unit conservationist, laid out the contour lines and selected the varieties of trees to be planted. The Turner soil conservation district constructed the terraces and planted the trees with a tree planting machine.

Terraces were constructed by the use of a Hurley township blade pulled by Jorgenson's farm tractor. It was necessary for Jorgenson to plow a furrow or two ahead of the blade with a smaller tractor to loosen up the hard soil.

Thirteen terraces each 15 feet wide were constructed covering about two acres and trees were planted on the terrace ridges with a tree planting machine operated by the Soil Conservation district. The trees were planted with the larger ones in the center rows and the smaller trees and shrubs in the outside rows.

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